

Underwater training is conducted in Marshall's Neutral Buovancy Simulator to prepare for Hubble Space Telescope operations.

Hubble servicing mission planned

NASA will launch a Space Shuttle to the Hubble Space Telescope this fall so astronauts can replace portions of the spacecraft.

Hubble is operating normally and continuing to conduct its scientific observations, but only three of its six gyroscopes, which allow the telescope to point at stars and planets, are working properly. Two have failed and another is acting abnormally.

Commander Curtis Brown, Pilot Scott Kelly and Jean-Francois Clervoy with the European Space Agency (ESA) will join spacewalkers Steven Smith, Michael Foale, John Grunsfeld and ESA astronaut Claude Nicollier on the mission. On STS-103, the crew will replace all six gyroscopes, a guidance sensor and the spacecraft's computer.

Another servicing mission next year will include installation of the Advanced Camera for Surveys, 10 times more powerful than the Faint Object Camera. The later mission also will install an advanced cooling system on the Near-Infrared Camera and Multiobject Spectrometer.

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Spaceport News

America's gateway to the universe. Leading the world in preparing and launching missions to Earth and beyond.

John F. Kennedy Space Center

Who's on FIRST?:

Local engineers, students and robots

by Anita Barrett

The whirring of motors and wheels could barely be heard over the cheering and music during the recent FIRST competition at KSC.

Excitement among students from engineers and 27 high school teams was running high from the first day of practice rounds March 4 through final matches March 5 and 6.

FIRST (For Inspiration and Recognition of Science and

Good

Although the musical 'Hair'

debuted about the same time they

students could be singing one of its

familiar tunes during STS-96, when

twinkling satellite named Starshine.

17 countries have polished nearly

Starshine's surface, transforming

900 round aluminum pieces of

the satellite into a payload that

looks much like those glittering

of a 1970's disco. The Starshine

spacecraft is a hollow aluminum

Nineteen Florida schools are

institutions participating, which

Orlando.

among the nearly 1,000 educational

include three in Cocoa and three in

sphere 19 inches in diameter.

balls that hung over the dance floor

More than 25,000 students from

they gaze up in the sky to see a

were born, hundreds of local

Technology) is a nonprofit organization that coordinates regional competitions for about 280 teams, and it recently held its first southeast regional competion at KSC.

The purpose of the seven-yearold FIRST competition that started at a New Hampshire high school and has grown to eight annual meets is to remind high schoolers

(See Robotics, Page 4)



Four robots maneuvered by student teams behind protective walls converge on a corner of the playing field during qualifying matches of the FIRST competition at KSC. Thirty schools from around the country converged here for the event held March 4-6.

morning,

Challenger Seven Elementary, McNair Magnet and Space Coast Middle school students in Cocoa helped to polish the aluminum pieces, along with students from Blankner Elementary, Conway Middle, and University High schools in Orlando.

Students ground the pieces (each slightly larger than a quarter) with fine sandpaper and polished them with diamond paste until the surface of each piece became an optically flat mirror.

In addition to participating in building the satellite, the students will study the craft's flight to determine how the

(See Starshine, Page 3)

Chilton succeeds Starbuck as Cape commander

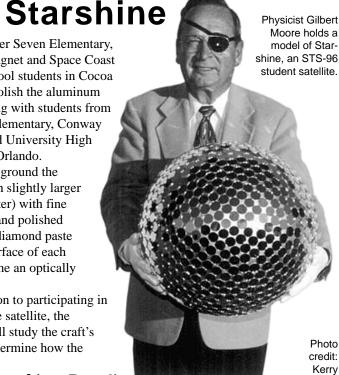
Former NASA astronaut Kevin Chilton will succeed Brigadier General F. Randall Starbuck as commander of the 45th Space Wing and director of the Eastern Range at Patrick Air Force Base,

Starbuck has been assigned as director, Air

(See Chilton, Page 7)



Kevin Chilton



Watching your form is easy when you go on line

The KSC Forms Management Office (FF-S2-A) and the Joint Base Operations Support Contract (J-BOSC) Forms Control Office have implemented an electronic forms program for official KSC forms, excluding specialty items such as tags, envelopes, labels and badges.

The project will take place in three phases, the first of which is scheduled to be completed in May. By the end of that month, KSC computer network users will be able to access about 800 KSC forms and 170 NASA forms on line.

Seven hundred KSC forms and 80 NASA forms are already available through the KSC electronic forms application. (KSC forms originate at this center and can be modified at the request of the Office of Primary Responsibility [OPR]; NASA forms originate at NASA headquarters and cannot be modified without permission from NASA Headquarters.)

Users having access to a computer will no longer need to request paper copies of forms that are available electronically.

Bond paper copies of electronic forms will continue to be available, however, through the Forms Warehouse until Oct. l, 1999. As stocks are diminished, the center will convert to ondemand printing of paper forms for users who do not have access to a computer or who experience temporary computer problems.

Phase One of the electronic forms project gives KSC computer users the capability to pull up forms electronically, fill them out, and print or e-mail them to another user who also has the forms software.

To use the electronic forms, the FormFlow Filler software package is required. Once granted access to the software, a user will be informed via e-mail how to load the software on his or her computer.

"Users are encouraged to request access as soon as possible," said KSC Forms Management Officer Ted Courson. "Access has already been granted to about 750 KSC computer users, and getting on line is a very easy process."

J-BOSC personnel should request access through the CARE Center at 867-2332. NASA personnel who receive assistance through the Outsourcing Desktop Initiative (ODIN) contract should call the ODIN Help Desk at 867-ODIN. All other KSC personnel can use KSC Form 28-780NS to request access.

This form can be filled out and printed from the Internet at http://kscforms.ksc.nasa.gov.

When calling to request access, a user will need to know his or her user ID and domain (both appear on the computer monitor upon booting up the machine), his or her physical location on center, company name and supervisor's name.

Computer users at KSC who have Windows on their computer can install the software themselves once they have been granted access. The Internet address http://kscforms.ksc.nasa. gov also provides installation and usage instructions along with the entire forms index listing.

NT capability to access the forms will be available in late March.

Phase Two will allow data entered on the forms to be saved to a database. Then, local databases created on a user's hard drive will remain available to the corresponding form.

Data administration and maintenance will be the responsibility of the user.

"If an OPR for any form has a requirement to save the data from a form, they can contact the Forms Control Office at 867-3590 for information on how to initiate the process," said Courson.

The Third Phase, to come later in the year, will provide Web access to KSC electronic forms.

In this phase, the electronic KSC forms will be accessed from the Web page.

FormFlow Filler was chosen as the software package in order to support the saving of data in a database.

This capability is not available in other standard packages, such as Word.

FormFlow also is the standard forms package for many government agencies. Many sites with which KSC shares forms, such as the Air Force



at Cape Canaveral Air Station, also use FormFlow.

"Accessing the electronic forms repository guarantees that the latest version of any form is being used," Courson added. "For auditing purposes, this simplifies ISO certifications and leaves a clear audit trail."

Other benefits include the elimination of blank forms storage in offices, a significant reduction in forms printing and warehousing expenses, and the elimination of multiple copies. Since information can be routed via computer, duplicate hard copies are unnecessary.

Key Control Custodian of the Year award granted

The Morgan H. Carter Sr., Key Custodian Of The Year Award recently was granted to Security Specialist Sharon Francis on March 10.

Calvin Burch, chief of NASA Protective Services, granted the award to Francis in a special award ceremony.

This was the eighth annual award of the Morgan H. Carter Sr., Key Control Custodian Of The Year.

The Morgan H. Carter Sr., Key Control Custodian Of The Year was established in 1991 to recognize a key control custodian who makes extraordinary contributions to the KSC Registered Lock and Key System and the KSC key control community.

The recipient's personal performance must go above and beyond that which is considered regular or routine, contributing to the greater effectiveness of complete security and the integrity of the KSC Registered Lock and Key System.

Francis was the primary key control custodian for Sherikon Space Systems during the transition between the Base



Operations Contract and the Joint Base Operations Support Contract and effectively protected affected registered keys. The selection for this award is made from the roster of all KSC key control custodians. KSC key control custodians are currently exercising control over more than 25,000 registered keys.

Starshine ...

(Continued from Page 1)

atmosphere affects its orbit.

About eight days into the mission, scheduled for launch in May, Starshine will be spring-deployed from a Hitchhiker canister. Starshine was installed in Discovery's payload bay March 10.

In the early evening and predawn hours, the satellite will catch sunlight and reflect it to the darkened Earth below, the glint of its mirrors making it look like a flashing light slowly crossing the starlit sky.

Due to the mirrors' reflecting the Sun's light, the orbiting satellite will be visible on Earth without telescopes during the early morning and evening twilight hours. Students all over the world will be able to visually track the 87-pound satellite and determine its orbit.

Enough young eyes around the world pointed skyward should make possible a very precise calculation of the orbit.

They'll be able to determine how much the thin upper atmosphere is causing the satellite to descend toward Earth and to speed up each day.

Students will record the precise timing of their observation by the use of stopwatches synchronized with international time signals. Students in the U.S. will use United States Geological Survey maps to measure the latitude, longitude and altitude of their observing sites, while students in other countries will use their own geodetic resources for the same purpose.

Then they will post their observations on the project's web site to compute the satellite's orbit.

From day to day, the period of the satellite's orbit will grow shorter. The students will measure the magnitude of the daily decrease of period and deduce the density of the Earth's upper atmosphere at the satellite's current altitude.

Students will factor in the effects of solar flares on Starshine's orbit.

"The spacecraft's orbit will change more rapidly during periods of increased sun spot activity," said Starshine Project Director and Physicist Gilbert Moore. "Sunspots are big magnetic whirlpools in the Sun's photosphere that spew out fountains of energetic particles.

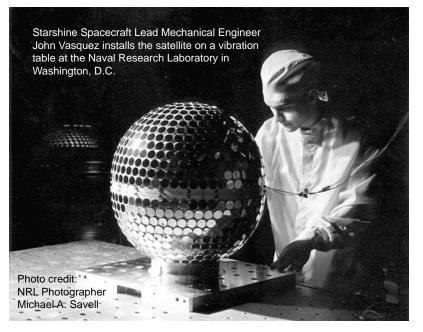
When these particles hit Earth's upper atmosphere, it heats up, expands and gets in the way of the satellite."

As part of their project, he said, "students can count sunspots during the day and then go out that evening and see the orbit change faster because of the increase in sunspot activity as we approach the predicted sunspot maximum in the year 2000."

As part of the tracking process, students will record the precise time the satellite passes between preselected pairs of target stars, and they'll feed the information over the Internet into a computer program. The program will gather data from kids all around the world.

"The satellite will appear shortly before sunrise or shortly after sunset," said Moore. "Students in the U.S. will then mark the time the satellite goes between a pair of stars they recognize, using stop watches synchronized to radio station WWWV in Fort Collins, Colo., or to telephone time signals from the U.S. Naval Observatory in Washington, D.C. Students in other countries will synchronize their stop watches with similar time standards in their own countries.

"They will determine where the satellite is in relationship to the star pair, note the time it crosses an imaginary line between those stars and enter the data on the Internet. Then they can use each other's data to calculate the satellite's orbit and the density of the atmosphere," he



added.

Starshine is Moore's brain-child. In the late 1950s, as a young engineer at New Mexico State University, he took fixes on Sputnik, Explorer and Vanguard as they arched across the night sky.

He was thrilled at being an observer for the start of the space age.

"Back then, I thought it would be a cool thing to have students run their own network instead of always having the professionals run the whole show," Moore stated. "Technology has now made that possible. Now kids have access to PCs just as powerful as mainframe computers were then, and the Internet allows us to take data anywhere in the world, free."

At 71, the retired Air Force

Academy professor has invited young people the world over to share in the excitement of space exploration by joining this international network of young amateur satellite watchers.

Starshine co-sponsors were easy to find.

They include NASA's Education Division, the Naval Research Laboratory, the Rocky Mountain NASA Space Grant Consortium, the U.S. Air Force, the U.S. Space and Rocket Center, the Alabama Aerospace Teachers Assocation, the Civil Air Patrol, the Boy and Girl Scouts of America, the Aerospace States Association, Bridgerland Applied Technology Center and Utah State University, among many others.

Moore said that the weight of Starshine was kept light so it would fly and fall within a school year.

After about six months in orbit, Starshine will be destroyed as it reenters Earth's atmosphere.

The satellite will descend to a sufficiently low altitude that aerodynamic heating will cause it to become a spectacular meteor and vaporize completely.

The students will attempt to photograph this event.

If deemed a success by NASA Administrator Dan Goldin, similar spacecraft may be built and flown on Shuttle missions throughout an 11-year sunspot cycle.

Software that supplies the math for Starshine calculations and additional information about the project can be found at Starshine's Web site at www.azinet.com/starshine.



The STS-96 crew, who will deploy Starshine, pose on the platform next to the SPACEHAB Logistics Double Module in the SPACEHAB Facility. Left to right are Mission Specialists Dan Barry, Tamara Jernigan, Valery Tokarev of Russia, and Julie Payette of Canada; Pilot Rick Husband; Mission Specialist Ellen Ochoa; and Commander Kent Rominger. The crew was at KSC for a payload Interface Verification Test for their upcoming mission to the International Space Station.

Robotics ...

(Continued from Page 1)

that math and science can be fun. If the KSC event is any indication, FIRST is making the grade.

"The teachers of these students

report that their grades have gone up from participating in this project, and their enthusiasm for learning has increased as well," said Eduardo Lopez del Castillo, a NASA engineer who mentored the Space Coast FIRST team. "They



Competitors (above) put on their thinking caps, wearing a number of different hats, as they prepare for battle against rival engineer/student alliances. Below, gladiator robots compete in an athletic-style competition.





Team participants (above) strategize around their robot during a break in the competition designed to provide students with a hands-on, inside look at engineering and other professional careers by pairing engineers and corporations with student teams

worked hard during these past couple of months to achieve their dream of participating in the Kennedy Space Center FIRST competition."

Teams had six weeks to build their robots to FIRST's specifications: the machines couldn't weigh more than 130 pounds, and they had to fit into a box measuring 30 by 36 by 48 inches.

Powered by 12-volt batteries and operated by remote control, the robotic gladiators spent two minutes each trying to grab, claw and hoist large, satin pillows onto their machines.

Teams played defense by taking away competitors' pillows and generally harrassing opposing machines.

Blue skies and cool breezes were the perfect venue for the spectators filling the bleachers and chairs in the 13,200-square-foot tent in the Rocket Garden.

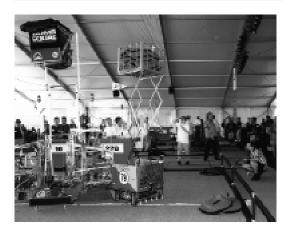
In a process of elimination through qualifying matches on Friday and Saturday morning, 16 teams remained for the final matches on Saturday afternoon.

The 1999 Kennedy Space Center Regional Championship Award was given to an alliance of a team from Miami (represented by Turner Technical Arts High School, Miami High School and Boston Scientific Symbiosis) and a team from San German, Puerto Rico (represented by Baxter Fenwal San German,





Center Director Roy Bridges, former KSC Director of Shuttle Processing Robert Sieck and Astronaut David Brown (left to right) observe the competition in awe (top photo), as students cheer for their team during final matches at the 1999 FIRST competition.



Lola Rodriguez De Tio High School, Laura Mercado High School and San German InterAmerican High School).

Among other Florida teams competing were Astronaut High and Titusville High schools (the ComBBat Team), Rockledge, Cocoa Beach and Merritt Island High schools (the Space Coast FIRST Team) and Satellite Beach High School (the Scorp Squad).

A party was held for the teams on Friday evening, March 5, in KSC's Apollo/Saturn V Center, where students dined on hot dogs, hamburgers and bratwurst — dancing the night away and forging new friendships.

Placing in the top eight alliances were 10 Florida teams, including the Space Coast FIRST Team.

The ComBBAt Team was given the Johnson & Johnson Best Sportsmanship Award and the Space Coast FIRST Team the Rookie All Star Award.

Awards presented to other Florida teams were Best Play of the Day (Aventura), Judges Award for Perseverance (North Miami Beach), Motorola Quality (St. Petersburg), Featherweight in the Finals (Aventura), Outstanding Defense Round (Clearwater), Best Offensive Round (Ocoee), Human Action Respect and Teamwork (St. Petersburg) and Finalist (Ocoee).

DaimlerChrysler Team Spirit, Xerox Creativity, Honeywell Leadership in Control and #1 Seed were other awards presented.

Two local teams (the ComBBat and Scorp teams) plan to participate in another FIRST competition, the Great Lakes Regional, to be held in Detroit March 25-27.

The ComBBat and Space Coast teams also will be participating in a national FIRST

At left, the competition continues as judges (far right) confer about the teams to take awards in this match of engineering intellect. Below, jubilant in a victory, one team leaps for joy watching the action on the playing field.



competition to be held at EPCOT Center, Disney World, April 22-24.

Center Director Roy Bridges encouraged students to continue their interest in engineering and told them he hoped they would be back at KSC in five years as part of the KSC team planning the mission to Mars.

Judges for the matches included Deputy

At right, KSC Director of Engineering Development Sterling Walker (left) and Center Director Roy Bridges (right) give "high fives" to the competitors after the FIRST event held at KSC. Below, high fives and handshakes are the order of the day as happy contestants, judges and event participants congratulate students on a job well done. This was the first southeast regional event held by FIRST, and the first time that KSC has hosted the event. NASA has participated by providing support in the past.



Director for Launch and Payload Processing Loren Shriver, former KSC Director of Shuttle Processing Robert Sieck, KSC retiree Katherine Harer and Superintendent of Brevard County Schools David Sawyer.

Volunteers served as referees.

"Volunteers handled crowd control, field repair, machine shop staff, referees, scoring, helping in the pit area and numerous other duties," said Carol Cavanaugh, a NASA representative on the KSC Planning Committee for the event. "To make this event a success required a team effort of many volunteers, and we could not have done it without them."

The KSC Planning Committee for the FIRST event included both NASA and contractor







employees. Representing NASA on the committee were Carol Cavanaugh, Lisa Fowler, Bennie Bell, Pat Caroleo and Eduardo Lopez del Castillo.

Boeing representatives included Mike Sklar, Matt Atkinson and Brenda Bell. SGS was represented by Jim Thornton, and Delaware North Parks Services participants were Charlene Walters and Debbie Land.

Also attending the event was Astronaut David Brown, who visited the pit area to meet all of the teams competing and autographed robots, t-shirts and frisbees.

Environmental leadership a driving force at KSC

Two representatives from KSC's Logistics Operations Directorate recently participated in the Florida Solar Energy Center's (FSEC) national alternative fuel vehicle rally, the SunDay Challenge. They went to help increase public awareness of KSC and NASA programs in environmental and technical leadership.

The seventh annual event was held Feb. 19 and 20 at the FSEC in Cocoa. More than 50 vehicles participated, representing universities, colleges, high schools, businesses and individuals from around the country.

NASA at KSC, the Melbourne Police Department and the Orlando Utilities Commission were the only participants from government.

The two vehicles that KSC entered — the Hytest Ranger and a compressed natural gas (CNG)-powered vehicle — took first and second place, respectively, in their class. Logistics

Environmental Coordinator Eric Dirschka, driving the Hytest Ranger, was the only participant to complete the event at exactly the determined time. The Hytest Ranger runs on a clean burning blend of natural gas and hydrogen.

As the name implies, the event is focused on Alternative Fuel Vehicles (AFVs). AFVs are vehicles powered by fuels other than gasoline or diesel. The fuels used by the vehicles at the rally included electricity, CNG, propane, hydrogen and soybean oil. AFVs produce less emissions than conventional vehicles and they help reduce our country's dependence upon foreign oil.

For these reasons, the federal government has mandated their expanded use through legislation such as the Energy Policy Act of 1992, which requires that 75 percent of federal fleet new vehicle purchases be AFVs. State and local

government fleets, as well as certain private fleets, also have AFV use requirements.

The General Services Administration (GSA), from whom KSC leases its vehicles, has made significant contributions to KSC's position as the agency leader in AFV use.

For example, they have managed to obtain additional CNG-powered vehicles from installations without refueling capability. The KSC fleet now includes more than 200 AFVs and even a CNG -powered bus, which provided transpor-



This Formula Lightning class car is considered a high performance electric vehicle.

Women's History Month dinner approaches

Mark your calendars for Thursday, March 25, when the Society of Women Engineers will be celebrating Women's History Month at the Jamaica Room, Radisson Resort in Cape Canaveral.

Commencing at 6:30 p.m., a formal dinner will be held, along with a panel session of special guests, including Diana MacArthur, chief executive officer of Dynamac Corporation; Marion Almy, founder of Archeological Consultants, Inc.; and Dr. Irma Becerra-Fernández, assistant professor of the Decision Sciences and Information Systems Department at the College of Business at Florida International University. These women will share anecdotes, words of wisdom and stories of their professional lives and businesses.

The purpose of this formal dinner during Women's History Month is to celebrate women's

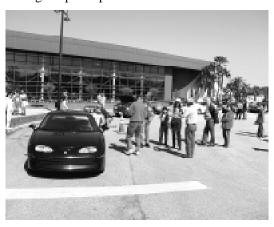


accomplishments and advances in science, engineering, business, education, government and many other areas.

For only \$20, you can participate in this dinner during Women's History Month. For reservations, call Brenda Fuentes at 867-1185. Corporate tables of 10 seats are also available.

tation for SunDay Challenge spectators.

The vehicles in this rally demonstrated that AFVs are no longer the slow-running jalopies of the 1970s. In fact, vehicles such as a 200 horsepower sport coupe, 120+ mph Indy style racers and a soybean oil-burning Corvette were among the participants.



The General Motors EV1 pace car leads the lineup for the SunDay Challenge rally. Third in line is the KSC Hytest Ranger and fifth is the crowd-pleasing Corvette fueled with soybean oil.

Run for your life!



You can help celebrate the opening of KSC's new and expanded Fitness Center by participating in KSC's first Fired Up Relay on Tuesday, March 23 at 5 p.m.

Although the Grand Opening and ribbon cutting of the new fitness center in room 1108 of the Operations and Checkout Building (O&C) Building has been postponed from its previously announced March 24 date, the race will still be held March 23 in front of the O&C Building. The new Grand Opening is now planned for late April or early May.

The Grand Opening and ribbon cutting event will include games and kick-off festivities, and celebrities are scheduled to attend the opening of the facility. Once scheduled, the new date will be announced in *Spaceport News* and *Countdown*.

You may register to participate in the race by contacting the Fitness Center at 867-7829.



This year's KSC All-American Picnic is scheduled for Saturday, April 10, from 10 a.m. to 4 p.m. at KARS Park I. Center Director Roy Bridges (third from left) bought the first ticket to the event from (left to right) USA Picnic Co-Chairperson Jim Furr, NASA Ticket Committee Co-Chairperson Launa Maier and NASA Picnic Co-Chairperson Harry Silipo. The picnic is co-sponsored by NASA's Shuttle Processing Directorate and United Space Alliance. Tickets are on sale at NASA Exchange stores. Tickets are \$4 for adults and \$3 for children. Tickets purchased the day of the event will cost an additional \$1.

Chilton ...

(Continued from Page 1)

Expeditionary Forces Management Team, Headquarters Air Combat Command, Langley Air Force Base, Va.

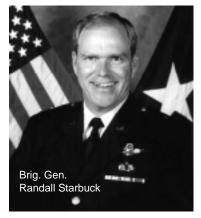
As 45th Space Wing commander, Chilton will oversee the preparation and launching of U.S. government and commercial satellites from Cape Canaveral Air Station, granting final approval authority for all launches on the Eastern Range. Previously, he was deputy director of operations, Headquarters Air Force Space Command, Peterson Air Force Base, Colo.

Chilton, a colonel in the U.S. Air Force and now brigadier general (select), is a veteran of three space flights, logging more than 704 hours in space. He was the pilot on both STS-49 and -59 and the commander on STS-76.

Chilton received his Air Force commission from the U.S. Air Force Academy in 1976 and then completed a masters degree in mechanical engineering on a Guggenheim Fellowship at Columbia University in 1977.

In 1978, he received his wings at Williams Air Force Base, Ariz.,and from 1978 through 1981, he served as a combat-ready pilot, instructor pilot and a squadron pilot.

In 1982, Chilton attended the U.S. Air Force Squadron Officer School at Maxwell Air Force Base, Ala., and finished as the number



one graduate for the year, receiving the Secretary of the Air Force Leadership Award.

In 1984, he was selected for the USAF Test Pilot School and also graduated number one in his class. He was then assigned to Eglin Air Force Base, Fla., where he conducted weapons and systems tests in all models of the F-15 and F-4. He was selected as an astronaut candidate in 1987.

Brigadier General Starbuck entered the Air Force in 1972 as a distinguished graduate of Southwest Texas State University's Reserve Officer Training Corps program. He has flown C-141 missions around the world in a number of contingencies and has commanded a flying training operations group. Prior to his assignment at Cape Canaveral, he was chief of operations, Headquarters 14th Air Force, Vandenberg Air Force Base, Calif.

A change-of-command ceremony is expected to occur in mid-May.

One hot ticket now on sale: the KSC All-American Picnic

The 1999 KSC All American Picnic is shaping up to be a great day for KSC employees, their families and friends. The picnic will be held April 10 from 10 a.m. to 4 p.m. at KARS Park I.

Tickets are now on sale in all KSC NASA Exchange stores and cost \$4 for adults (ages 13 and up) and \$3 for children (ages 3 to 12). Children under the age of 3 are not required to have a ticket.

There will be a "Children's Carnival" at the picnic, and the KSC Spaceman will be available for photos. Eight ponies will be at the carnival, along with putt-putt golf, a model rocket launch demonstration, a 1938 model fire truck with faithful Dalmation dog, clowns, a train ride, carousel, kiddy swings and more.

Family sports will feature Golf Closest to the Pin; Basketball Free Throw and 3 Point Shot Contests; Street Hockey Shootout; Horseshoes; Bingo, and Adult-Child Team Relay Races; as well as pickup games in volleyball, softball and putt-putt golf.

There will be a Kids Fishing Tournament (with prizes!) for children 14 and under. Kids must be in the company of an adult, 18 or older. You can register your team now on the Picnic Web Site at http://www.ksc.nasa.gov/events/

1999/picnic/ .

A wildlife encounter featuring Thunderhawk Big Cat Rescue, a native American group dedicated to the preservation of the "great" cats, will be at the picnic again this year. Show times are 11 a.m., 1 p.m. and 2:30 p.m.

An All-American Cultural Cuisine Cook-Off will be held, in which participants will prepare a dish from any culture or geographic area of their choice. To sign up, contact Rick English at 867-2126.

For automobile and gas engine enthusiasts, a Car & Antique Engine exhibition will be held. Antique, stock, street rods, custom cars and antique gas engines will be featured.

The meal, catered by Sonny's Real Pit Bar-B-Q, will consist of a BBQ Pork Sandwich, baked beans and cole slaw; the children's menu will include a hamburger or hot dog, potato chips and a cookie.

Volunteers are needed to help out in all areas. If you are willing to help out for even an hour or two, please contact Cindy Coddington at 867-3758 or Wanda Redmond at 861-3510.

Details and rules for all events can be found on KSC's All American Picnic Web Site and more information will be provided in the next issue of *Spaceport News*.

March employees of the month



March employees of the month include, left to right, Scott Huzar, Shuttle Processing; Tom Elam, Logistics Operations, Chuck Tatro, ELV and Payload Carriers Program; James Lichtenthal, Business Innovation Group; Louise Boyd, Administration Office; Christopher Forney, Engineering Development; Christy Moore, Public Affairs Office; Michael Steven, Installation Operations; Debbie Hurlburt, Office of the Chief Financial Officer; William Merrill, Checkout and Launch Control System Office; and Vincent Carrubba, Safety and Mission Assurance. Not shown are Kenneth Newton, Joint Performance Management Office; Schonda Rodriguez, Space Station and Shuttle Payloads; and Jay Gurecki, Space Station Hardware Integration Office.



X marks the spot for a perfect landing

The X-38, a technology demonstrator for the proposed emergency crew return vehicle for the International Space Station, passed a major milestone March 5 with a successful unpiloted flight test.

The first X-38 atmospheric test vehicle (seen above) was dropped from under the wing of NASA's B-52 aircraft at the Dryden Flight Research Center, at Edwards Air Force Base, Calif., at 11:30 a.m. EST and completed a descent from a 23,000-foot altitude at 11:38 a.m. The test focused on the use of the X-38's parafoil parachute, which deployed as planned within seconds after the vehicle's release from the B-52.

Atmospheric drop tests of the X-38 will continue for the next two years using three increasingly complex test vehicles. The tests will increase in altitude to a height of 50,000 feet and include longer flight times for the test craft prior to deployment of the parafoil.

In the year 2000, an unpiloted space test vehicle is planned to be deployed from a Space Shuttle and descend to a landing.

The X-38 crew return vehicle is

targeted to begin operations aboard the International Space Station (ISS) in 2003. Once operational, the X-38 will become the first new human spacecraft designed to return humans from orbit in more than 20 years.

Although the primary application of the new spacecraft would be as an International Space Station 'lifeboat,' the project also aims at developing a design that could be easily modified for other uses, such as a possible joint U.S. and international human spacecraft that could be launched on expendable rockets as well as the Space Shuttle.

The X-38 takes advantage of already-developed technology for as much as 80 percent of the spacecraft's design, such as a lifting body concept originally developed by the Air Force X-24A project in the mid-1970s.

In the early years of the ISS, a Russian Soyuz spacecraft will be attached to the station as a crew return vehicle, but as the size of the station crew increases, a vehicle like the X-38 will be able to accommodate up to seven passengers.

Determined not to be scrubbed



Throughout March, you may see bulldozers and tractors chopping and cutting shrubs and tall trees in areas by KSC's north gate to restore the habitat required by the Florida scrub jay (seen above). The scrub habitat has become overgrown, losing its value for scrub-dependent plants and animals and presenting conditions that can change the habitat. Tall trees, for example, provide perches for predators that threaten the scrub jays. After the chopping and cutting, when conditions are favorable, the Merritt Island Wildlife Refuge's fire specialist will burn the 1,500-acre area to create natural openings and reduce the overall height of the scrub.

After delivering a French satellite for the EUTELSat Consortium, a Russian cargo plane, the Antonov 124, sits on the end of the Shuttle Landing Facility at KSC. The plane arrived at KSC last week. The satellite is targeted to be launched April 12 aboard an Atlas IIAS rocket from Complex 36, Cape Canaveral Air Station.





John F. Kennedy Space Center

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